

H.A

Notice of Allowability

Application No.

10/725,851

Examiner

Evan Pert

Applicant(s)

CABRAL ET AL.

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed December 2, 2003.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 12 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the abstract, line 4, change "associated in" to --associated with--.

At p. 4, line 1 of [0017], change "preformed" to --performed--.

At p. 11, line 4 of [0051], change "gate region 20" to --gate region 16--

At p. 12, last line of [0054], change "gate regions 20" to --gate regions 16--.

At p. 14, line 2 of [0062], change "polysilicon gate 20" to --polysilicon gate 16--.

At p. 14, line 2 of [0064], change "gate regions 20" to --gate regions 16--.

At p. 14, line 1 of [0065], change "surfaces 16" to --surfaces--.

At p. 14, line 2 of [0065], change "gates 20" to --gates 16--.

In claim 1, line 6, change "is in contact" to --in contact--.

In claim 1, line 11, change "is in contact" to --in contact--.

In claim 1, line 13, change "and second-metal containing" to --and second metal-containing--.

In claim 2, line 3, change "into the substrate" to -- in the substrate--.

EXAMINER'S NOTE: The changes by examiner's amendment are meant to expedite prosecution and are not intended to alter meaningful claim scope as originally filed.

The numeral "20" describes spacer 20 [see 0037], while "16" describes a blanket of polysilicon material, gate conductor(s) patterned from the polysilicon 16, as well as surfaces or parts and/or designated areas of the polysilicon that becomes the gate conductor(s).

The change to "in contact" rather than leaving "is in contact" places claim 1 in better grammatical form, and "into the substrate" is equivalent to "in the substrate" in the context of the written description so "in" is better grammatical form for claim 2.

Allowable Subject Matter

2. Claims 1-26 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose applicant's claimed methodology (that advantageously minimizes the complexity and cost associated with fabricating a CMOS structure containing silicide contacts and silicide gate metals).

Applicant's claimed invention can be distinguished from prior art by a flow of process steps that include: 1) providing a planarized structure comprising exposed polysilicon gate regions, 2) forming a (metal-containing) first bilayer and patterning the first bilayer to be removed from selected exposed gate regions, 3) forming a second (metal-containing) bilayer over the structure having patterned first bilayer, and 4) performing a silicide process that converts (both) the first and second metal-containing bilayers into metal silicides.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The references cited are related in that they disclose various prior art methods of forming silicide for lowering contact and conductor resistance in CMOS using a planarized structure and/or deposition of metal-containing layers, yet none of the references or combination of references suggest applicant's invention as claimed in claim 1 (and as alternatively characterized in the examiner's statement of reasons for allowance in item 3 above).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 571-272-1969. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ETP
March 29, 2005


EVAN PERT
PRIMARY EXAMINER